

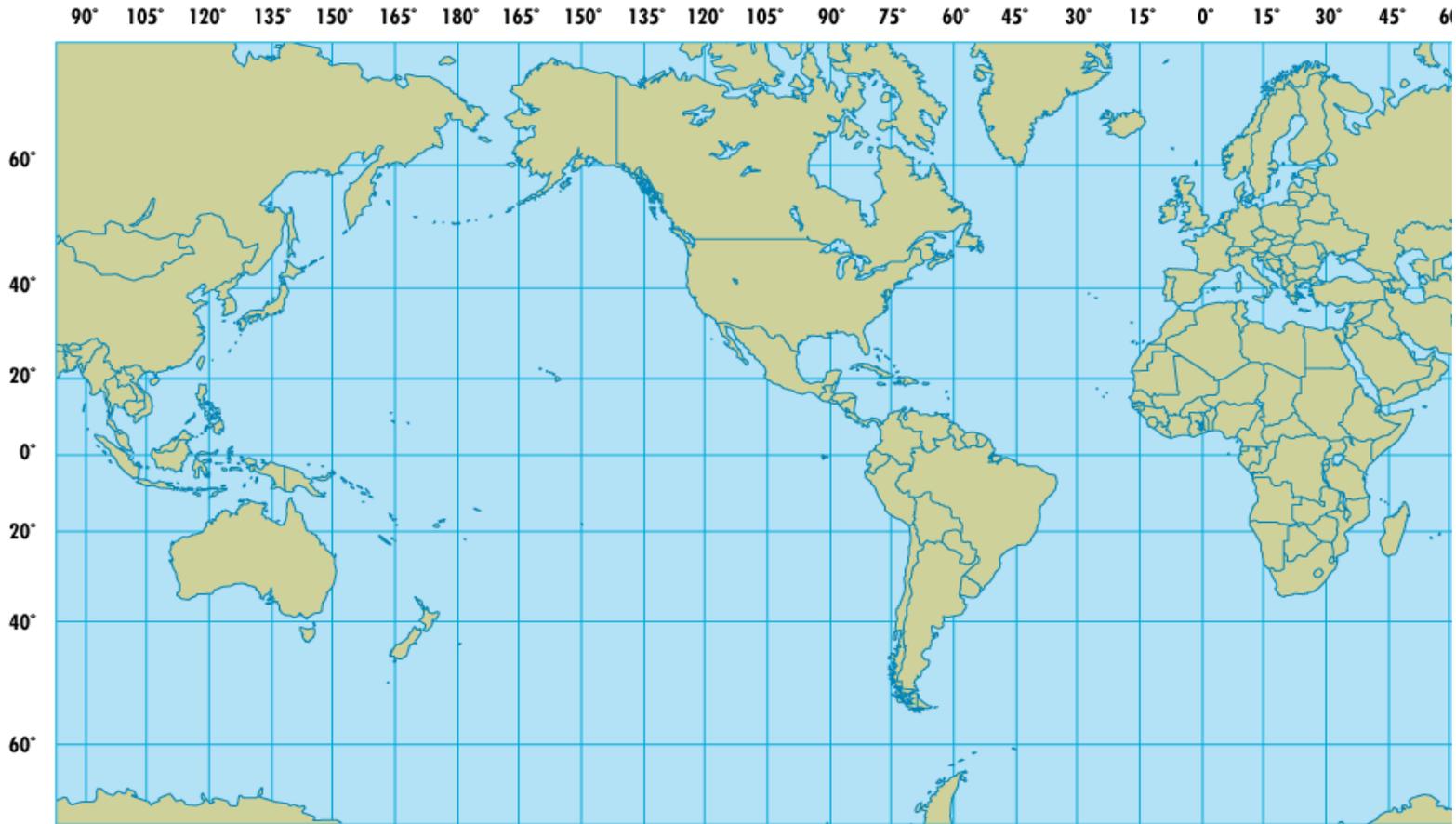
Multicultural Astronomy

Education Packet

NASA Goddard Space Flight Center
Wallops Flight Facility
Wallops Education Office
Wallops Island, Virginia

Astronomy Around the World

Label the places we visit today.



1. _____

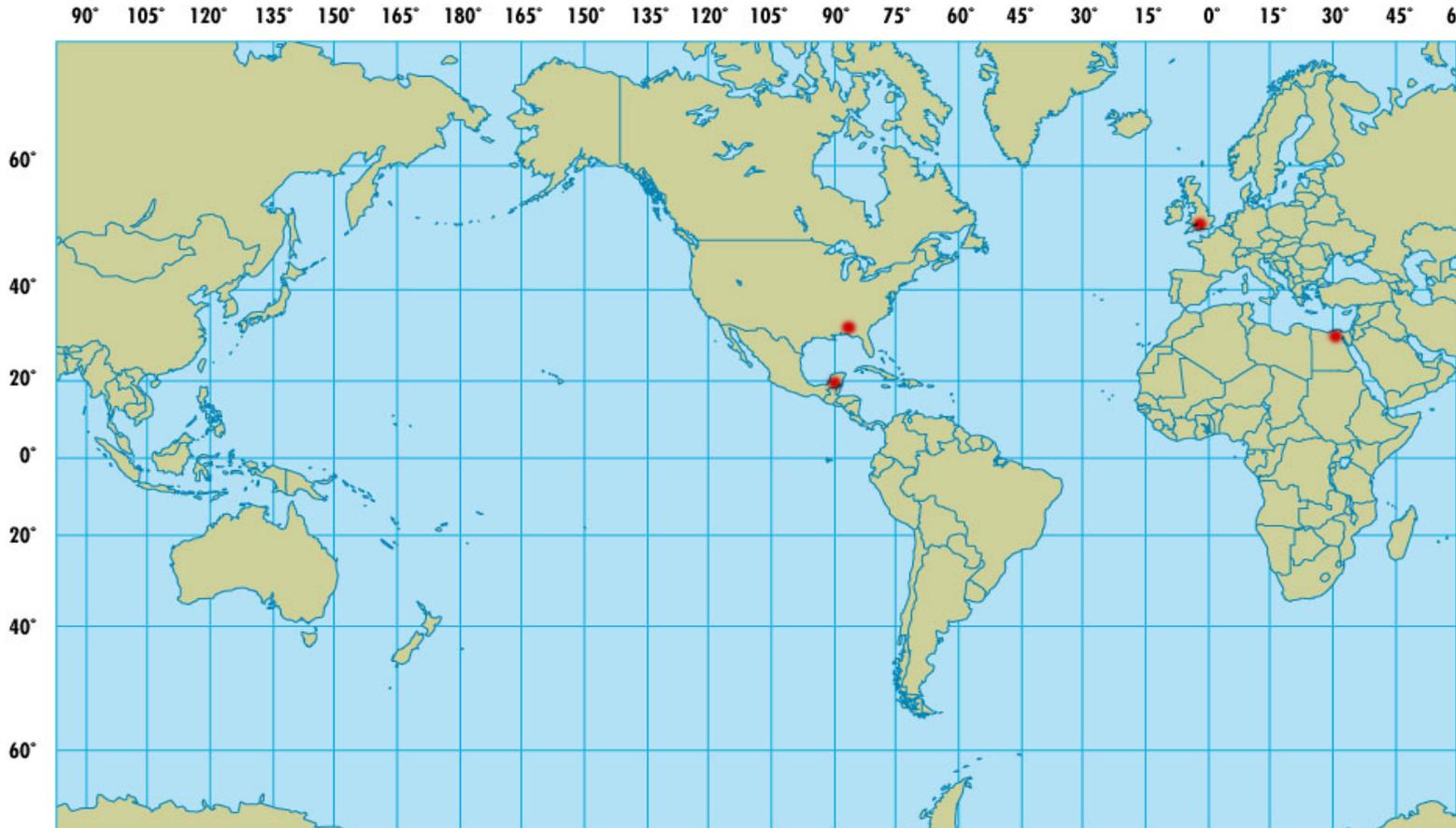
2. _____

3. _____

4. _____

Astronomy Around the World

Label the places we visit today.



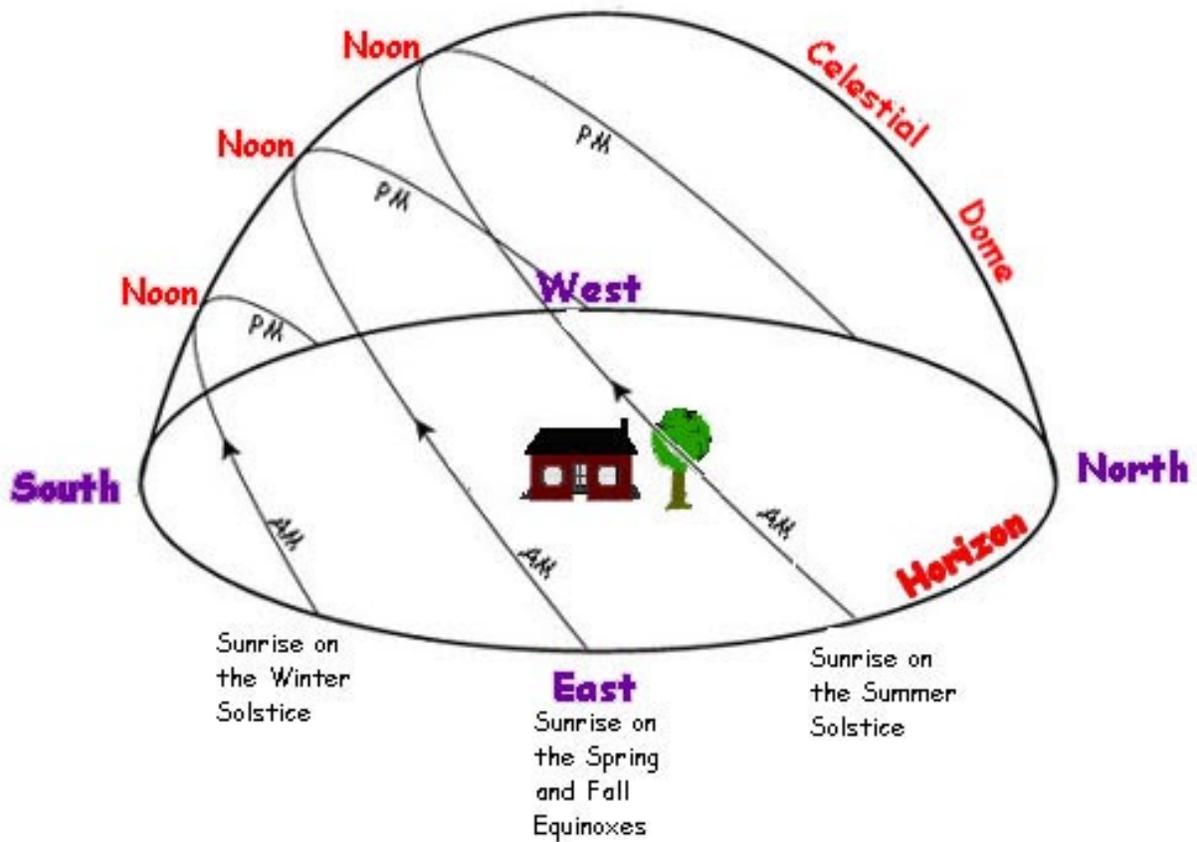
1. England

2. Egypt

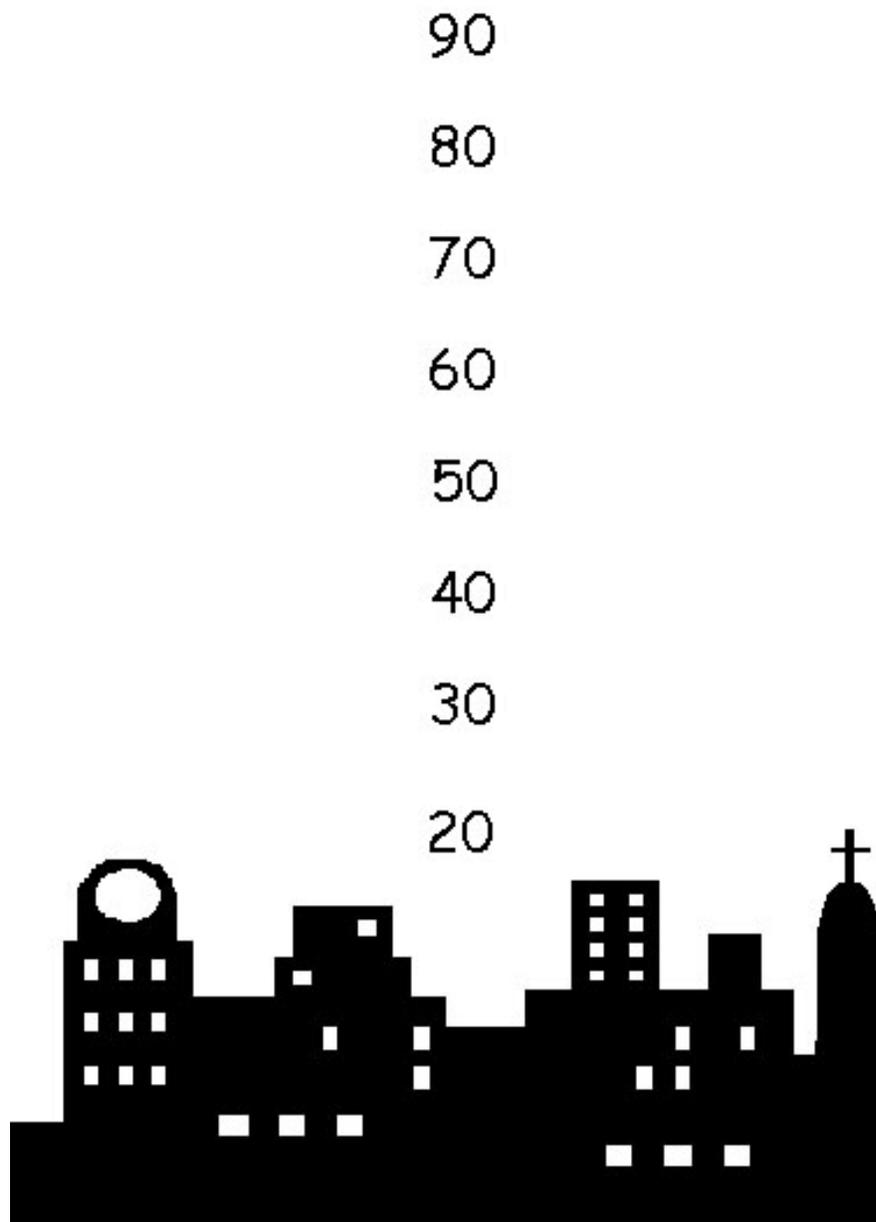
3. Mexico

4. North America

Sun's Path

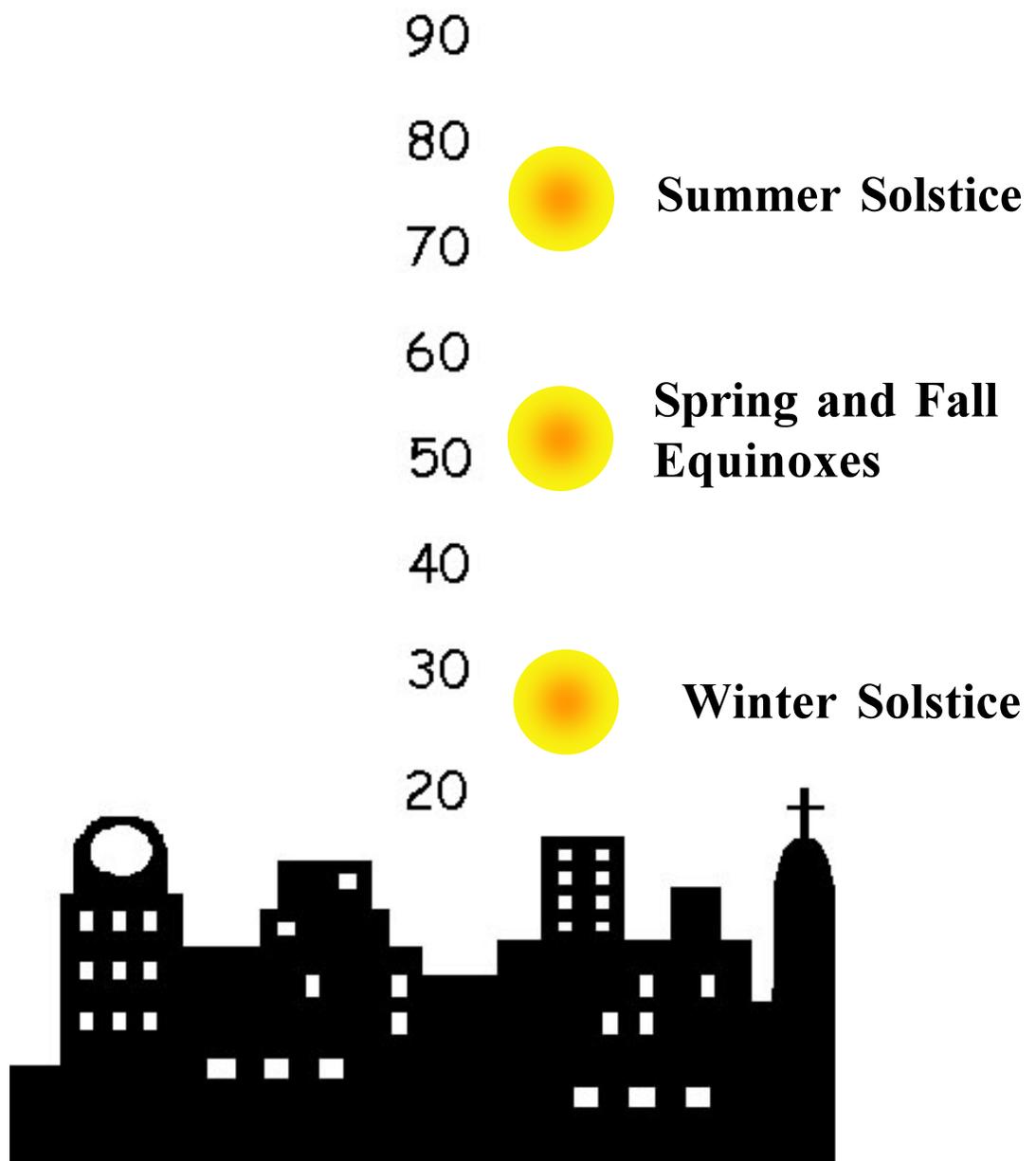


Sun's Height



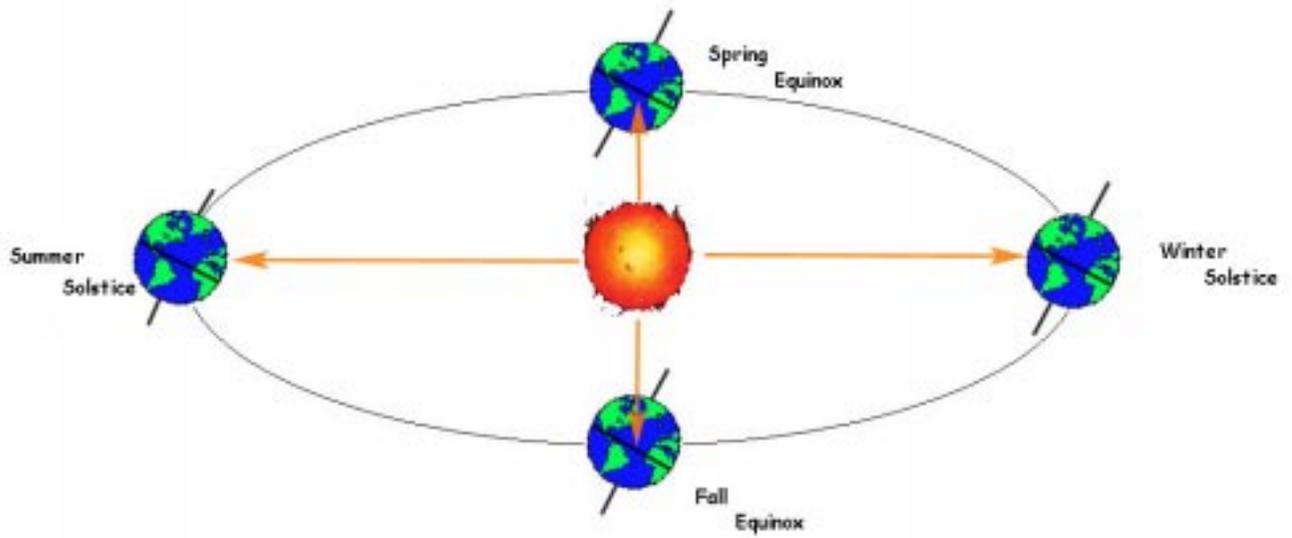
Draw the position of the Sun at noon on the solstices and equinoxes.

Sun's Height



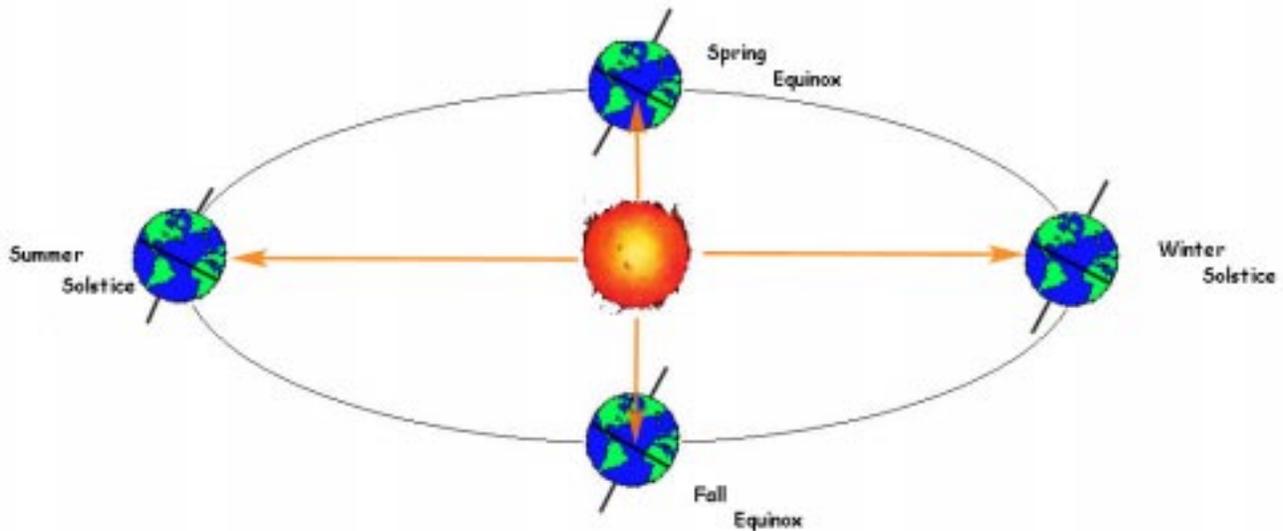
Draw the position of the Sun at noon on the solstices and equinoxes.

Soltice and Equinox



Dates	Sunrise Direction	Maximum Elevation	Sunset Direction	Day Length	Solstice or Equinox
March 21-22					
June 21-22					
September 21-22					
December 21-22					

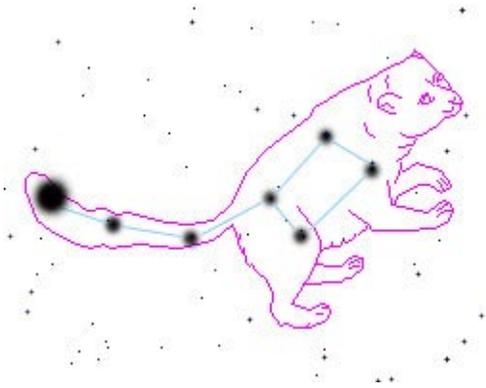
Soltice and Equinox



Dates	Sunrise Direction	Maximum Elevation	Sunset Direction	Day Length	Solstice or Equinox
March 21-22	East	52°	W	12 hours	Spring Equinox
June 21-22	North East	75.5°	North West	15 hours	Summer Solstice
September 21-22	East	52°	West	12 hours	Fall Equinox
December 21-22	South East	28.5°	South West	9 hours	Winter Solstice

Constellations

Name the constellation, when it can be seen and it's principle star.

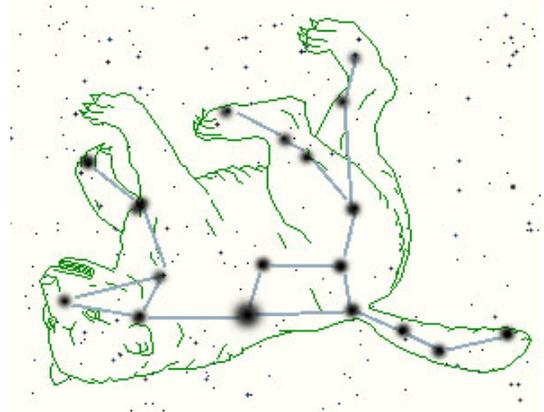


Western Name _____

Japanese Name _____

Season _____

Star _____

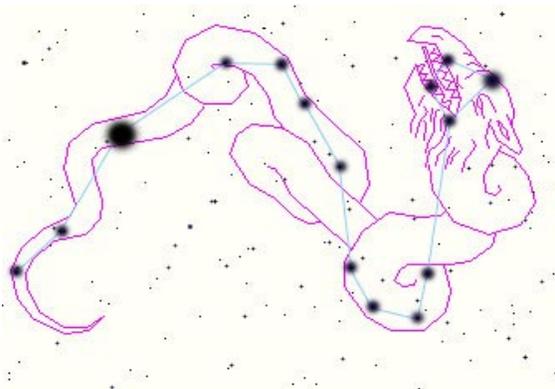


Western Name _____

Japanese Name _____

Season _____

Star _____

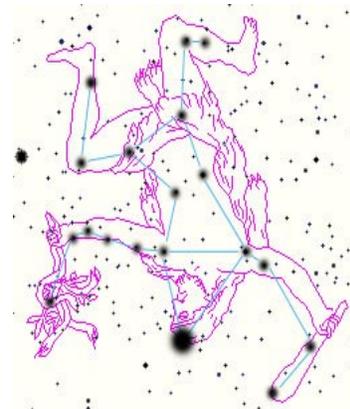


Western Name _____

Japanese Name _____

Season _____

Star _____

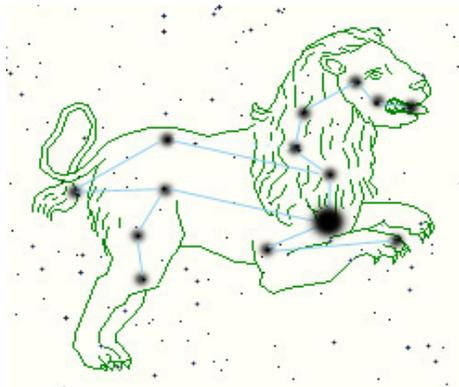


Western Name _____

Japanese Name _____

Season _____

Star _____

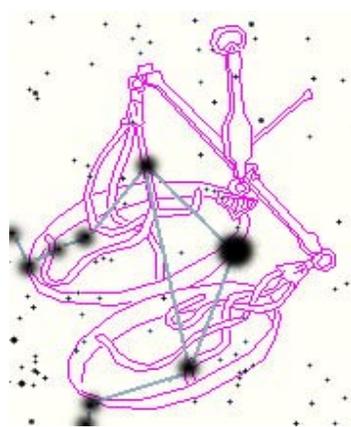


Western Name _____

Japanese Name _____

Season _____

Star _____

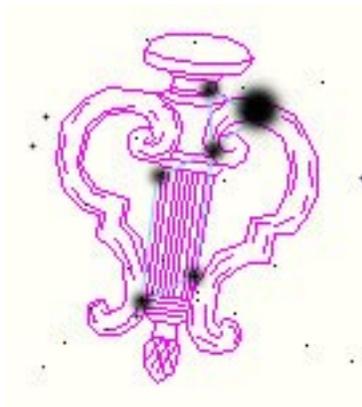


Western Name _____

Japanese Name _____

Season _____

Star _____



Western Name _____

Japanese Name _____

Season _____

Star _____

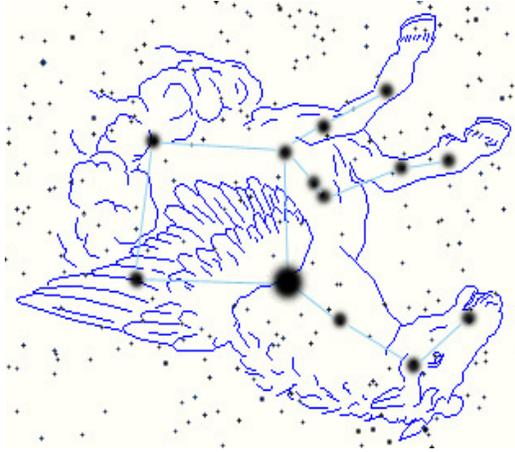


Western Name _____

Japanese Name _____

Season _____

Star _____

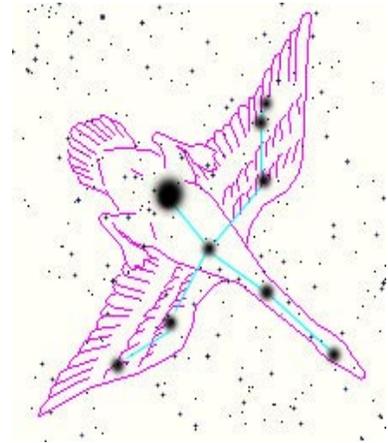


Western Name _____

Japanese Name _____

Season _____

Star _____

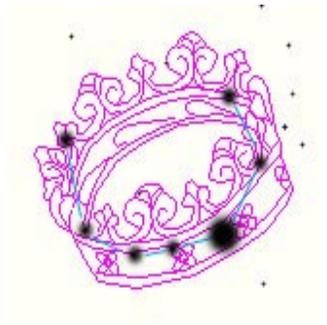


Western Name _____

Japanese Name _____

Season _____

Star _____



Western Name _____

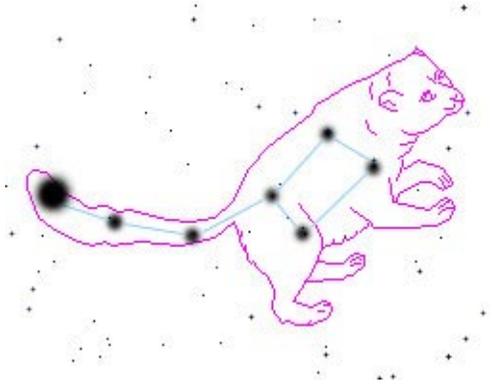
Japanese Name _____

Season _____

Star _____

Constellations

Name the constellation, when it can be seen and it's principle star.

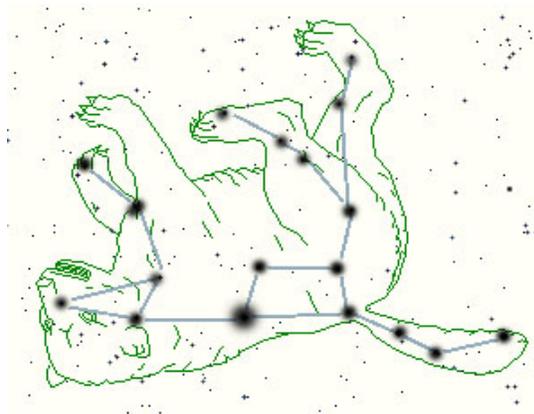


Western Name Ursa Minor, Little Dipper

Japanese Name KoGuma

Season Year Round

Star Polaris

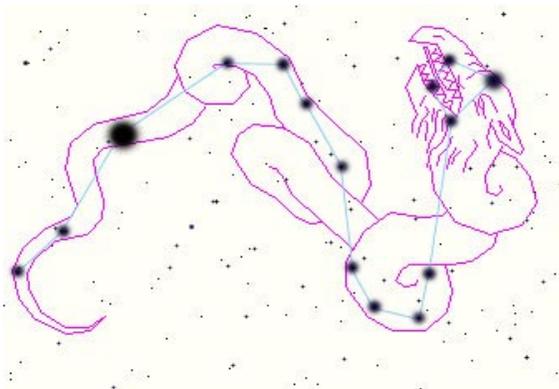


Western Name Ursa Major, Big Dipper

Japanese Name OoGuma

Season Year Round

Star Dubhe

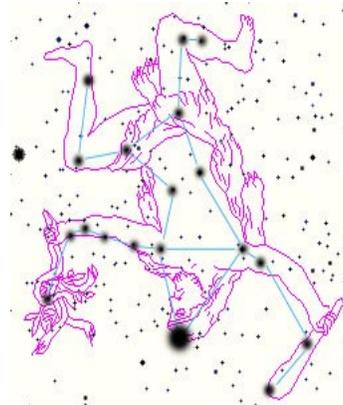


Western Name Draco, The Dragon

Japanese Name Ryuu

Season Year Round

Star Thuban

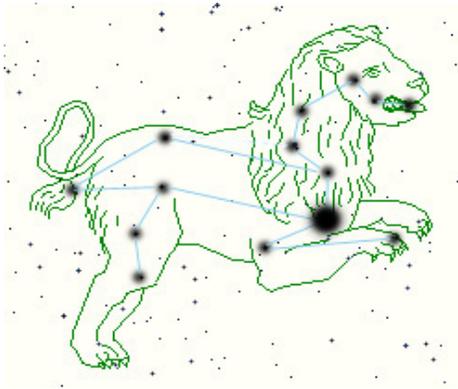


Western Name Hercules

Japanese Name None

Season Summer

Star Ras Algethi

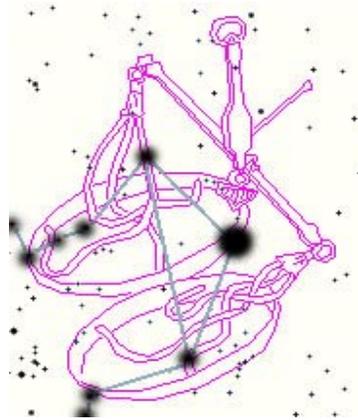


Western Name Leo, The Lion

Japanese Name ShiShi

Season Spring

Star Regulus

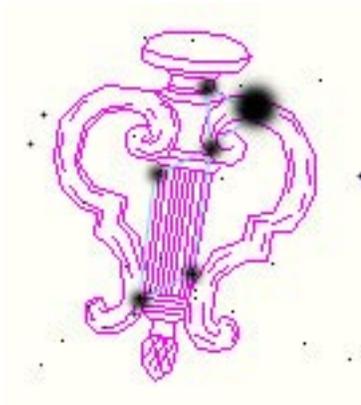


Western Name Libra, The Scales

Japanese Name Tenbin

Season Summer

Star Zubenelgenubi



Western Name Lyra, The Harp

Japanese Name Koto

Season Summer

Star Vega

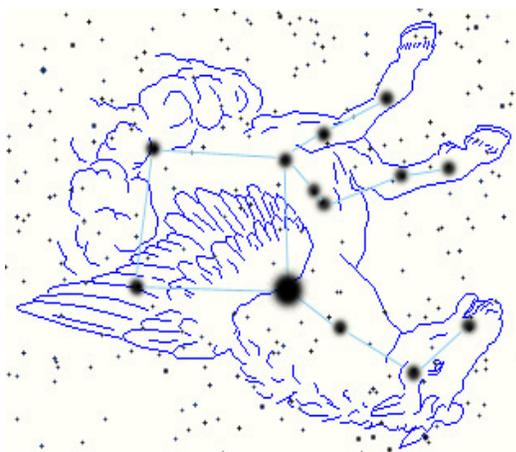


Western Name Orion, The Hunter

Japanese Name Tsuzumi boshi

Season Winter

Star Betelgeuse

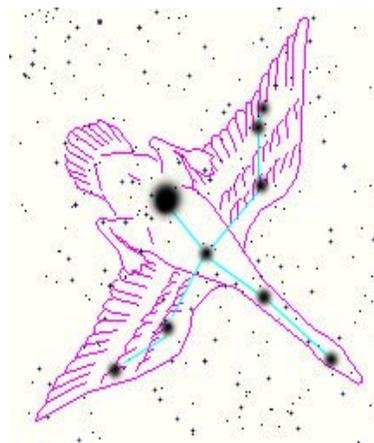


Western Name Pegasus, The Horse

Japanese Name None

Season Fall

Star Markab



Western Name Cygnus, The Swan

Japanese Name Hakuchuo

Season Fall

Star Deneb



Western Name Corona Borealis, Northern Crown

Japanese Name Kanmuri

Season Summer

Star Alphecca

Big Dipper Clock



February



March



April



May



June



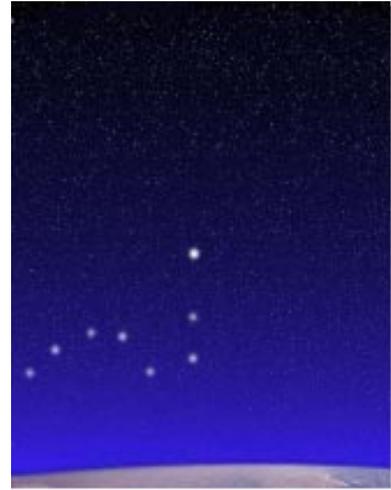
July



August



September



October



November



December

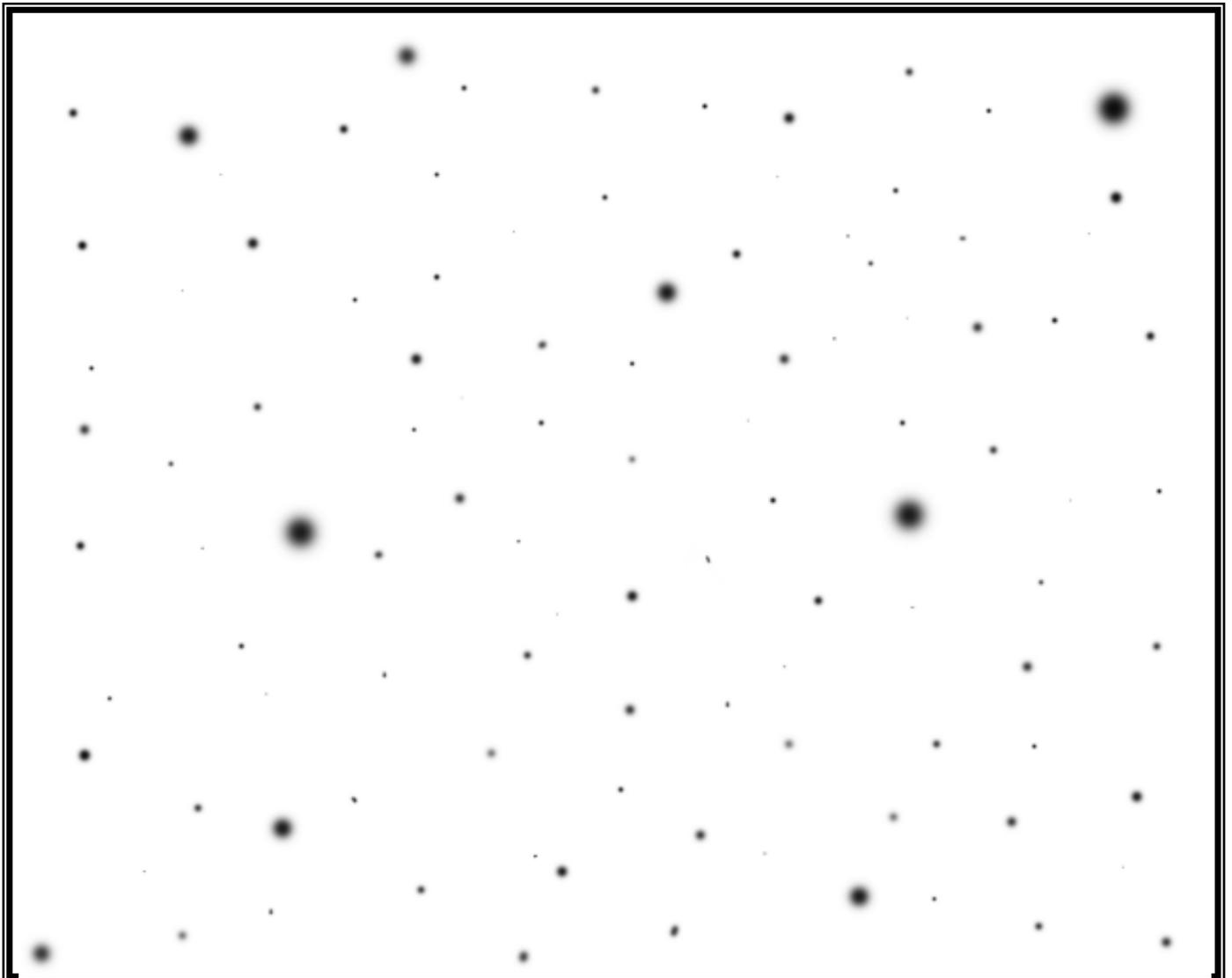
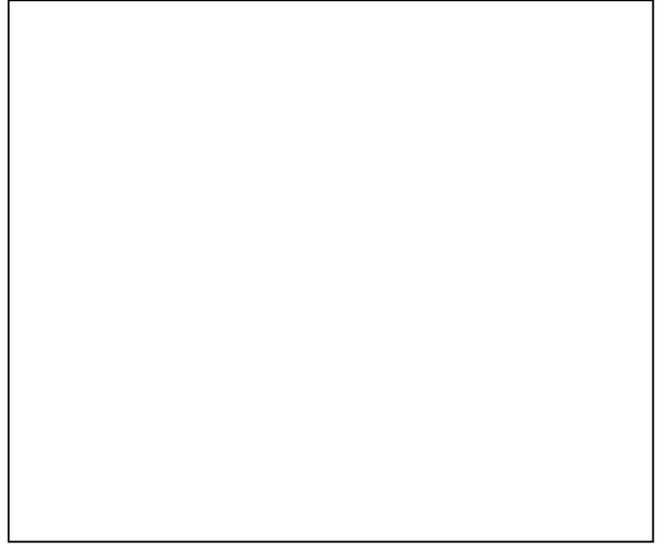


January

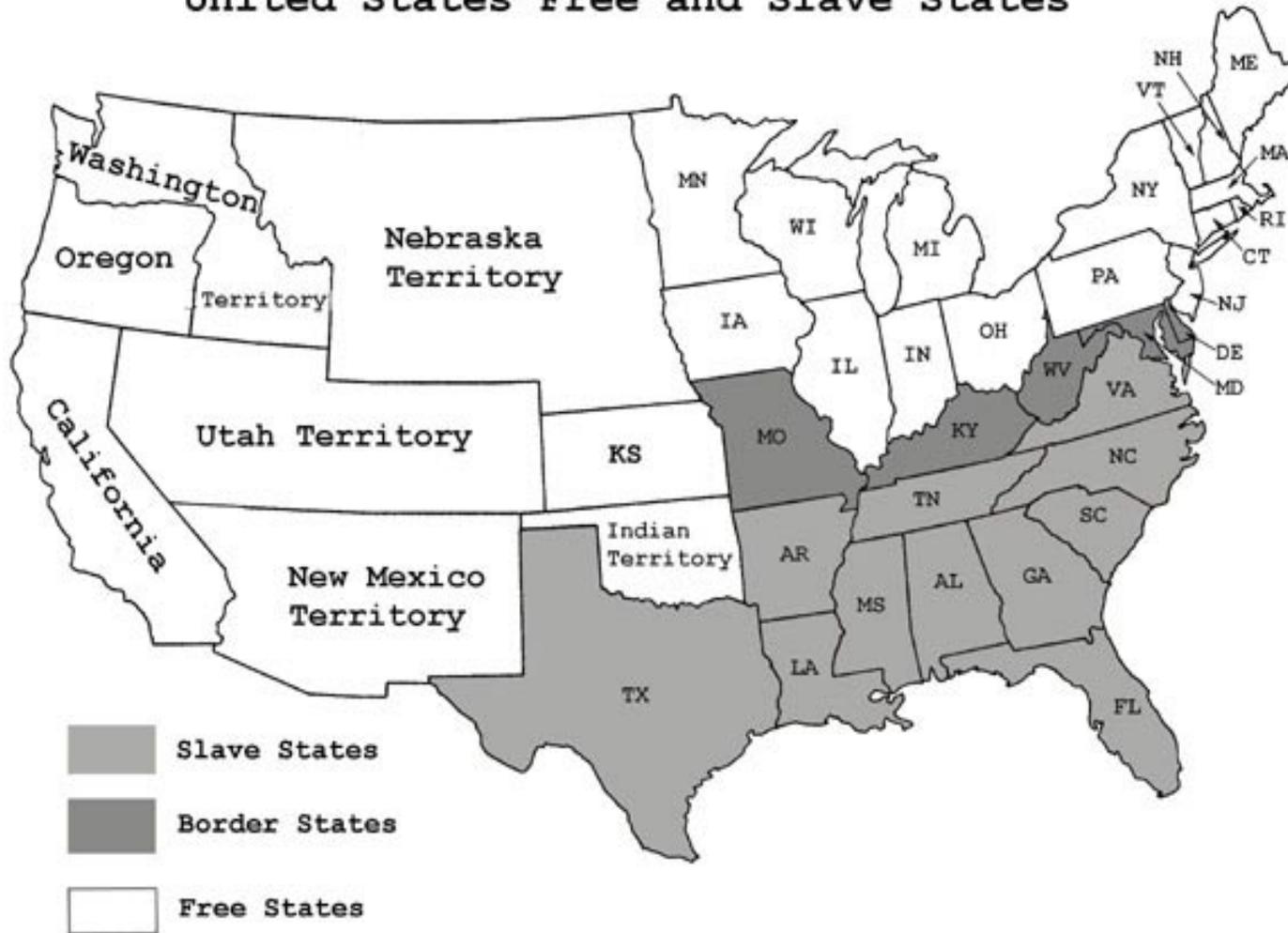
Create Your Own Constellation!!

In the box on the right, draw a picture of an animal, person, or object. Anything you want to draw but do not make it too complicated.

Using the stars on the picture below, see if you can make your drawing into a constellation. Remember, constellations can be upside down and sideways and does not have to look exactly like your drawing.

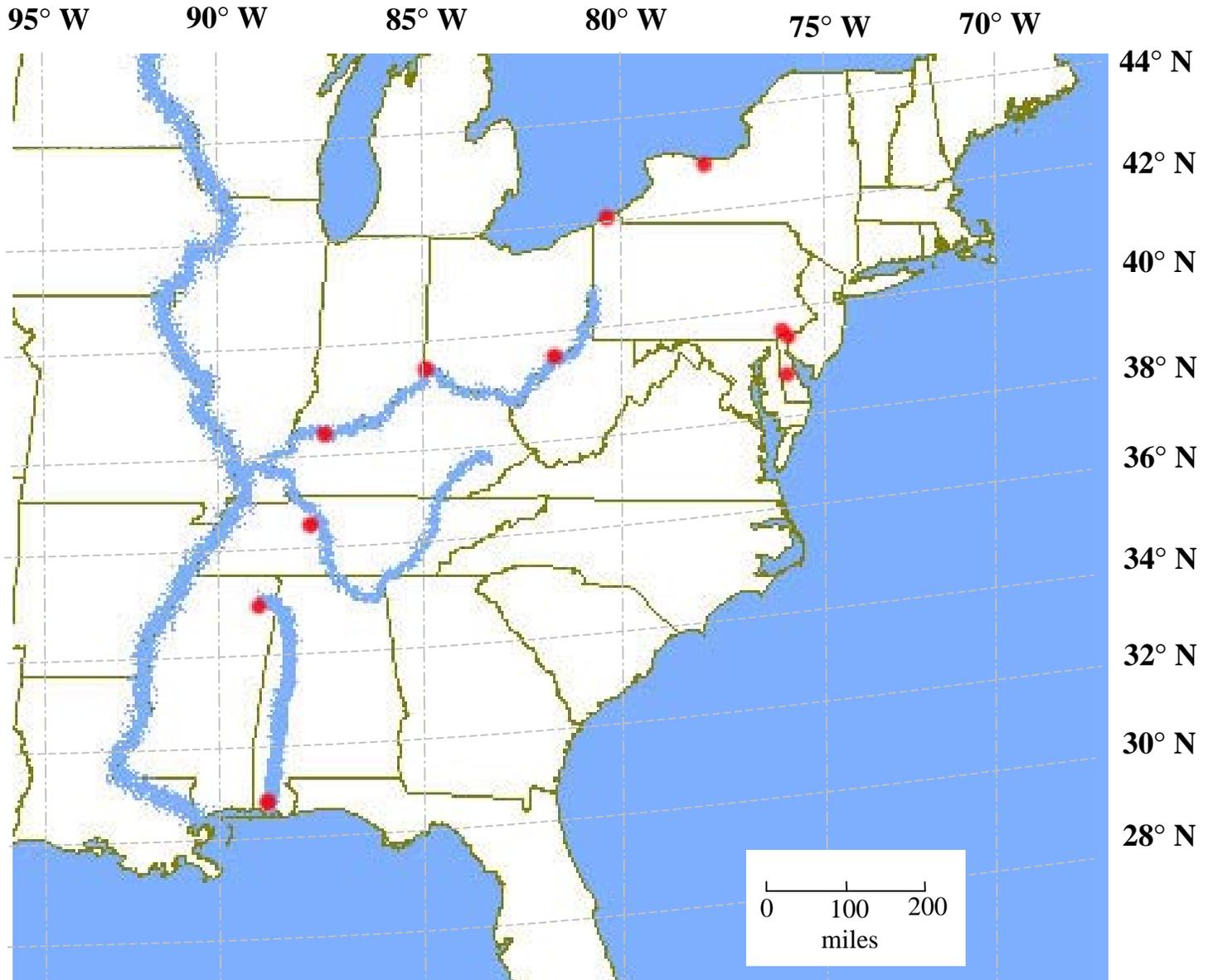


United States Free and Slave States



Abbreviation	State
AL	Alabama
AR	Arkansas
CT	Connecticut
DE	Delaware
FL	Florida
GA	Georgia
IL	Illinois
IN	Indiana
IA	Iowa
KS	Kansas
KY	Kentucky
LA	Louisiana
ME	Maine
MD	Maryland
MA	Massachusetts
MI	Michigan
MN	Minnesota
MS	Mississippi
MO	Missouri
NH	New Hampshire
NJ	New Jersey
NY	New York
NC	North Carolina
OH	Ohio
PA	Pennsylvania
RI	Rhode Island
SC	South Carolina
TN	Tennessee
TX	Texas
VT	Vermont
VA	Virginia
WV	West Virginia
WI	Wisconsin

ROUTES TO THE NORTH



East Coast Route

Site 1	Camden, DE
Site 2	Wilmington, DE
Site 3	Philadelphia, PA
Site 4	Rochester, NY

Deep South Route

Site 1	Mobile, AL
Site 2	Fulton, MS
Site 3	Camden, TN
Site 4	Henderson, KY
Site 5	Lawrenceburg, IN
Site 6	Marietta, OH
Site 7	Erie, PA

Drinking Gourd Song

CHORUS

Fol-low the drink - ing gourd! Fol - low the
drink - ing gourd. — For the old man is a - wait - ing for to

VERSE

car - ry you to free - dom If you fol - low the drink - ing gourd. When the
sun comes back, and the first quail calls, — Fol - low the
drink - ing gourd. — For the old man is a - wait - ing for to
car - ry you to free - dom If you fol - low the drink - ing gourd

(Repeat chorus)

The riverbank makes a very good road,
The dead trees will show you the way.
Left foot, peg foot, traveling on,
Follow the drinking gourd.

The river ends between two hills,
Follow the drinking gourd.
There's another river on the other side,
Follow the drinking gourd.

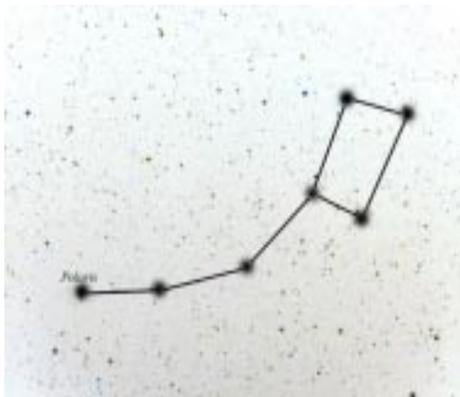
(Repeat chorus)

When the great big river, meets the little river.
Follow the drinking gourd.
For the old man is a-waiting for to carry you to freedom
If you follow the drinking gourd.

Follow the Drinking Gourd

Name _____

Position	City	State	Latitude	Longitude	River	Constellation	Season
1							
2							
3							
4							
5							
6							
7							

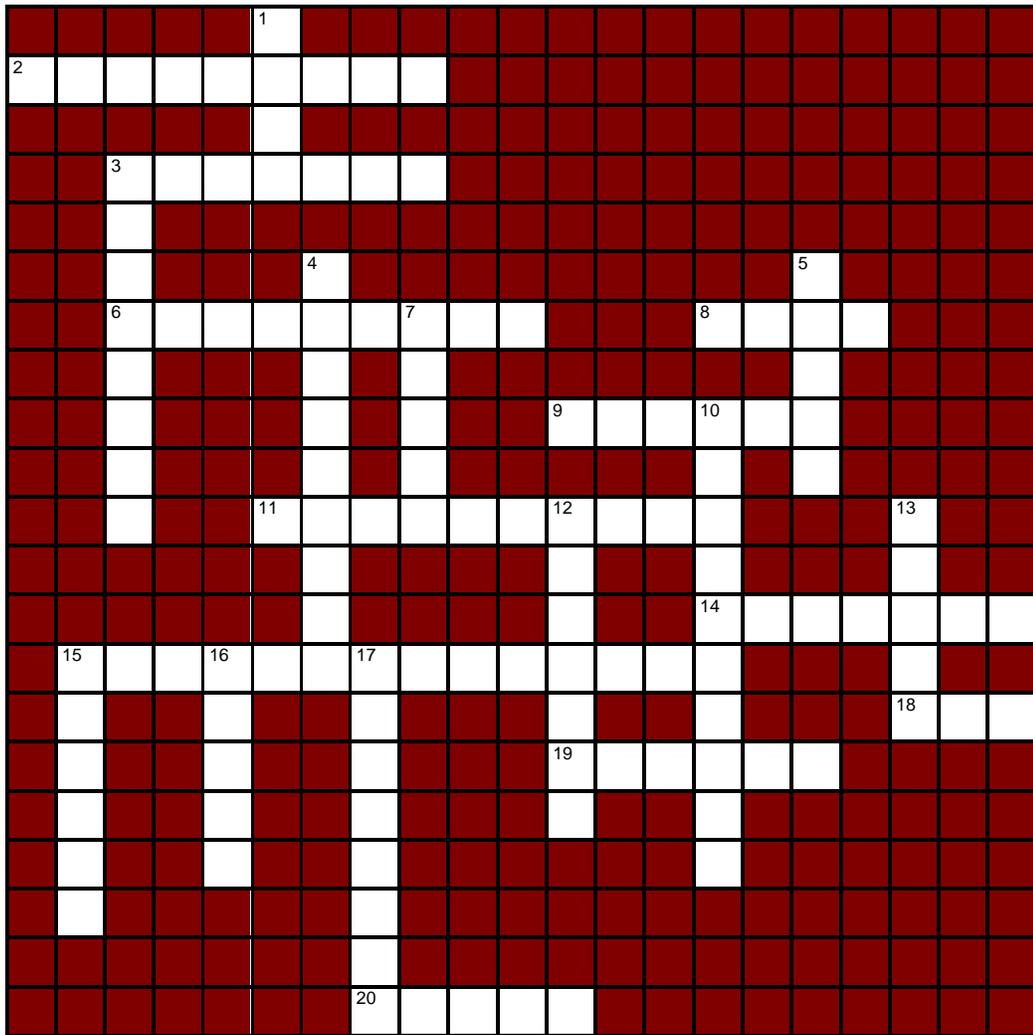


Follow the Drinking Gourd

Answer Key

Position	City	State	Latitude	Longitude	River	Constellations	Season
1	Mobile	AL	31° N	88° W	Tombigbee	Orion	Winter
2	Fulton	MS	35° N	88° W	Tombigbee	Northern Crown and Libra	Summer
3	Camden	TN	36° N	87° W	Tennessee	Cygnus	Fall
4	Henderson	KY	38° N	87° W	Ohio	Orion	Winter
5	Lawrenceburg	IN	39° N	85° W	Ohio	Leo	Spring
6	Marietta	OH	39° N	82° W	Ohio	Hercules	Summer
7	Erie	PA	42° N	80° W	Lake Erie	Pegasus	Fall

Multicultural



Astronomy

Across

2. Large rock structures usually with some connection to astronomy.
3. The North star.
6. The study of the stars and planets.
8. Our natural satellite.
9. The Big _____ points to the North star in the Little _____.
11. Megalith located in England.
14. The length of day and night are the same during the _____.
15. Imaginary pictures in the stars made by civilizations.
18. The closest star to Earth.
19. The stone structure that resembles the constellation, Leo the Lion.
20. Country where the pyramids are located.

Down

1. Place in Egypt along the Nile, where the Great Pyramid is located.
3. Pointed structures used in many civilizations around the world.
4. Degree measurements East and West on a globe or map of Earth.
5. Plant used by slaves to drink from.
7. _____ the Hunter, is a constellation.
10. Due to _____, Earth's axis moves in an ellipse ever 26,000 years.
12. A shadow on Earth or the Moon when the Sun, Earth and moon are in line.
13. The Maya closely measured the movement of the planet _____.
15. Slaves escaped north to _____.
16. Sparkling lights in the night sky that makes constellations.
17. Degree measurements North and South on a globe or map of Earth.

Multicultural

J U J F J S S P H I N X S T S X L I T R
B P R E C E S S I O N D X U G S O L R Z
Y I F S O E S P I L C E U B N Z N R V I
T K V M X V N V Y V U F X S M J G R K K
I W A X N O I R O C A O A X O N I U Q E
Q W I A M E G A L I T H S C N X T S J E
L M C I D C T A T S Y Z O O O D U L W B
V B X B S R A M D B T C C N W U D O K U
K Z U I O P U C K A G O P S T Z E K J V
K I K G T R O O E P N N N T G I Z A Q Z
N S R N V G G H G T B A S E C Q L C D I
K Q D S M F J L H L X I C L H M U R M S
A X B I W A P S A U R P Q L V E J D F D
S R D U M J O T W A C V H A C P N C V P
X U M G Y A I Z L C U S I T R C O G J K
P D N M S T R O T P W B D I P P E R E H
Z U O E U Y P Y B P H M V O K M V E F Q
K O F D V O I G P G A R V N N A T G F W
N W E P F Q Y M O N O R T S A T P Y G E
D B F Z N Z U Q W Q S R A T S D E I F S

Astronomy

1. (_____) The study of the stars and planets.
2. (_____) Slaves escaped north to _____.
3. (_____) Imaginary pictures in the stars made by civilizations.
4. (_____) The Big _____ points to the North star in the Little _____.
5. (_____) A shadow on Earth or the Moon when the Sun, Earth and moon are in line.
6. (_____) Country where the pyramids are located.
7. (_____) The length of day and night are the same during the _____.
8. (_____) Place in Egypt along the Nile, where the Great Pyramid is located.
9. (_____) Plant used by slaves to drink from.
10. (_____) Degree measurements North and South on a globe or map of Earth.

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12. (_____) Large rock structures usually with some connection to astronomy.
13. (_____) Our natural satellite.
14. (_____) _____ the Hunter, is a constellation.
15. (_____) The North star.
16. (_____) Due to _____, Earth's axis moves in an ellipse every 26,000 years.
17. (_____) Pointed structures used in many civilizations around the world.
18. (_____) The stone structure that resembles the constellation, Leo the Lion.
19. (_____) Sparkling lights in the night sky that make constellations.
20. (_____) Megalith located in England.
21. (_____) The closest star to Earth.
22. (_____) The Maya closely measured the movement of the planet _____.